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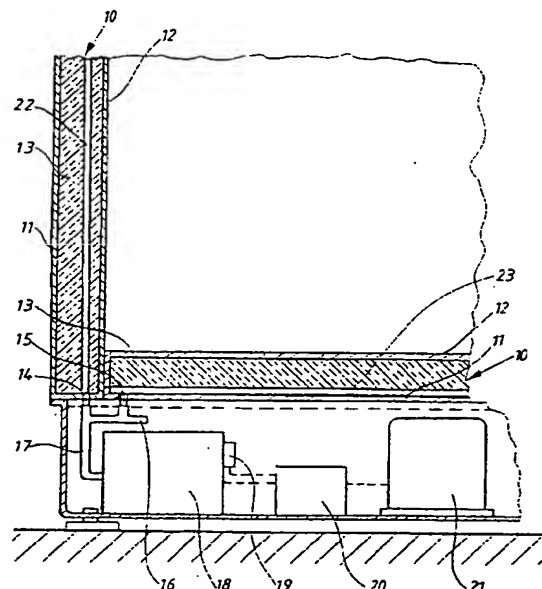
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54 **Insulation for refrigerators or freezers.**

57 This invention relates to a heat insulation for a refrigerator or freezer. The insulation comprises a material, which is placed in a hermetically closed space (13) surrounded by a diffusion tight shell, and which does not achieve its full insulating properties until the refrigerator has been used for a long time.



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in the evacuation conduit 17 is sensed by a sensor 19 which is connected to an electric control means 20 deactivating the pump when a certain underatmospheric pressure has been achieved in the evacuation conduit. The control means 20 can also be used to activate or deactivate the compressor 21 in the cabinet from the thermostat.

In the material which is provided in the space 13 it is possible to make distribution channels 22 which connect remote parts of the insulation with the evacuation channels 14, 15, 16 the distribution channels being produced by means of plastic pipes, by thermal shock for instance by putting a thin unisolated conduit in the material after which a current is allowed to flow through the conduit so that the heat burns a channel or by using focused light for the same purpose. It is also possible to create distribution channels by putting a fibre material 23 in the insulation preferably on its outside. By a suitable choice of material also a spontaneous cracking of the cells can be achieved during the evacuation because of the pressure difference between the outside and inside of the cell.

It should be mentioned that it is possible to place the insulating material free in any diffusion tight material for instance plastic the diffusion tight material forming a surrounding cover which after evacuation is placed in the shell which forms the walls of the refrigerator or freezer. This creates mechanical stability and also a slot between the shell and the insulating material the slot being used for the evacuation.

ution channels (22,23) for forming transport conduits for the gas in the insulation.

- 5 6. Insulation according to claim 5, **characterized in** that a fibre material is used as distribution channels (23) this material preferably being placed in touch with the shell.
- 10 7. Insulation according to claim 5, **characterized in** that the distribution channels (22) are created by means of thermal shock for instance by an electric conduit which is heated or by focused light.
- 15 8. Insulation according to claim 5, **characterized in** that the channels are formed in the boarder line between the material and the shell by not allowing the material to adhere to the shell.
- 20 9. Insulation according to any of claims 2-8, **characterized in** that the shell is a plastic material.

## Claims

- 35 1. Heat insulation for refrigerator or freezer, **characterized in** that it comprises a material, which is placed in a hermetically sealed space (13) surrounded by a diffusion tight shell, and which does not achieve its full insulating properties until the refrigerator has been used for a long time. 40
2. Insulation according to claim 1, **characterized in** that the space (13) communicates with a vacuum source (18) and that the material comprises closed cells with a gas which can diffuse through the cell structure with a velocity which is at least five times faster than the air gases. 45
3. Insulation according to claim 2, **characterized in** that the material consists of a foamed material such as polyol/isocyanate said gas being a drive gas in the foaming procedure. 50
4. Insulation according to claim 2 or 3, **characterized in** that said gas is carbon dioxide. 55
5. Insulation according to any of the preceding claims, **characterized in** that it comprises distrib-



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# EUROPEAN SEARCH REPORT

Application Number  
EP 93 85 0169

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	US-A-1 898 977 (COMSTOCK)	1	F25D23/06
A	* page 3, line 19 - page 10, line 71; figures 1-11 *	2	
A	US-A-5 034 424 (WENNING) * column 19, line 8 - line 20 *	2-4	
A	US-A-5 009 952 (KLEPSCH) * the whole document *	3,4,9	
A	GB-A-760 942 (GENERAL ELECTRIC) * page 4, line 17 - line 38; figure 4 *	5,6,8	
A	FR-A-2 126 126 (ÉTABLISSEMENTS BONNET) * page 3, line 9 - page 6, line 26; figures 1-5 *	5,7,8	
A	GB-A-730 146 (GENERAL ELECTRIC) * page 2, line 7 - page 3, line 62; figures 1-3 *	5,8	
A	GB-A-865 391 (ROLLS-ROYCE)		
A	EP-A-0 476 337 (BASF)		
A	US-A-1 550 961 (HAWKINS)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			F25D
Place of search		Date of completion of the search	Examiner
THE HAGUE		21 January 1994	Boets, A
CATEGORY OF CITED DOCUMENTS			
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